Book Review:
How To Invent (Almost) Anything

Joe A. Miller
Quality Process Consulting

Title: How To Invent (Almost) Anything
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Authors: David Straker and Graham Rawlinson

How To Invent (Almost) Anything is a book that teaches us invention with a new combination of existing tools. It challenges us to understand the world around us, and how it works, with examples of commonplace systems that still offer opportunity for invention through logic and simple science. It challenges us to understand the creative tool, our brain, what affects it, and how it works for creativity. It challenges us to understand and use these insights and techniques, together with the tools of simple TRIZ for creativity, invention and innovation.

The book is divided into four toolbox sections, with three expository sections interspersed between the toolboxes, and includes appendices for the elements of Altshuller's Contradiction Matrix from TRIZ:

Toolbox 1: Logical addresses logical approaches to inventive and creative problems. These include *Decomposition* (including the refreshing introduction of 'Chunking' – either up to look at the big picture, or down to look at more detail) and *Questioning* with techniques like cause-effect diagrams, causal chains, and 5W1H.

Expository section A – Simple Science is a very broad basic overview discussion of energy and forces, matter, space, and time. These 'factors' are treated for various ways in which they can be used in inventing. Chapters in this section illustrate how to apply the authors' Simple Science 'lens' to consideration of friction, and then to a variety of commonplace devices. These chapters show the opportunity to improve (invent) even in the most common and simple systems.

Toolbox 2: Scientific is a simple presentation of key elements of Classical TRIZ. Key principles of TRIZ are highlighted including function, harm, ideal solutions, trimming, substances and fields, evolution and contradictions. A table of the 39 parameters and a matrix and listing of the 40 principles are included in Appendices. The discussion of these tools is limited, though a set of groupings of principles is offered as a means of simplifying their use. Household oriented "TRIZ thinking" application examples are provided, but more examples than are offered for the use of these tools might aid the neophyte reader.

A seven step TRIZ process is provided, directing the reader toward: 1.Resources, 2.Parameters, 3.Benefits, 4.Ideality gap, 5.Evolution trends, 6.Contradictions, and 7.Resources Again.

Expository Section B – Psychobabble deals with the brain in three chapters. The purpose is to help us understand the primary tool we have for creativity. Chapter 7. 'How the brain works,' presents brain anatomy and function, how memory patterns are developed, brain function as a classification system by using associations. These associations are presented as offering both a trap and an opportunity for creativity. Without ever using the term, the authors provide a basis for understanding the frequently used TRIZ term "psychological inertia". In a "So What" discussion with tips for the would be inventor, the book suggests ways to avoid generalizations, build mental models, and build / strengthen mental associations.

Chapter 8. 'The motivating fire,' explores what motivates us, how we derive meaning, and how we interact with the world. Potential effects on creativity, the need for novelty as a means of avoiding boredom and to satisfy curiosity, and how the brain motivates us to action are presented. Techniques for directing these forces are offered.

Chapter 9. 'Managing in a complex world,' is intended to help us pay attention, to see things around us and to identify real problems. The authors then teach how to infer meaning to what we have sensed, through a process of classification, comparison, and judging. Deep thinking is discussed to bring our assumptions and beliefs, values and attitudes into the cognitive process. This chapter also addresses elements of formulating intent, selecting a best course of action, and translating intent into action.

Toolbox 3: Psychological looks at how to turn the brain "to a tool for enjoyable and profitable invention." The authors offer an equation:

Problem + Stimulus – Blocks = Ideas

and provide "one chapter on removing the blocks and one on providing the stimulus that should light the fires of creation …"

Section C: Putting it all together offers no expository content, but is instead a one chapter Toolbox 4: Holistic. It offers an "integrating mental model" to organize everything from before: The TAO Design Process? which is defined as "Thinking Around Objectives or you can create your own words." The authors present a process model intended to help look at a Big Picture. The central structure is five stages; Exploring, prospecting, digging, extracting, and refining. Around this central structure are two additional tracks. A Scientific track includes TRIZ, logic and an analytic sequence. A Psychological track includes dream sequencing and a "creative cloud" pathway. These elements are well explored, under an overall approach urging us to not use an "or" approach to invention and innovation, but to use an "and" approach; "Analytic and Simple Science and TRIZ and Creative."

How To Invent (Almost) Anything introduces the tools and concepts of TRIZ, integrates them with how the brain works and how it can be put to work, and offers an interesting holistic approach to creativity and problem solving. I found it to be interesting and informative, and to contain techniques and methods I can put to use.